Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-53. (canceled)

54. (currently amended) A method of synthesizing a nucleic acid molecule comprising:

A) mixing the following components 1) to 3) with sample nucleic acid as a template:

1) a primer set consisting of four distinct oligonucleotide primers, wherein:

the first oligonucleotide primer comprises (i) a 3′ terminal nucleotide sequence that anneals to a sample single-stranded nucleic acid molecule and serves as the origin of synthesis for synthesizing a first single-stranded nucleic acid molecule complementary at least in part to the sample single-stranded nucleic acid molecule and (ii) a 5′ terminal nucleotide sequence that is complementary to an arbitrary region of the first single-stranded nucleic acid molecule;

the second oligonucleotide primer comprises (i) 3′ terminal nucleotide sequence that anneals to the first single-stranded nucleic acid molecule prepared using the first oligonucleotide primer and serves as the origin of synthesis for synthesizing a second single-stranded nucleic acid molecule complementary at least in part to the first single-stranded nucleic acid molecule, and (ii) a 5′ terminal nucleotide sequence that is complementary to an arbitrary region of the second single-stranded nucleic acid molecule;

the third oligonucleotide primer comprises a nucleotide sequence which anneals to a region of the sample single-stranded nucleic acid molecule, wherein said region is located 3′ to a region where the first oligonucleotide primer anneals and outside of a region defined by the outer nucleotides of the first oligonucleotide primer; and

the fourth oligonucleotide primer comprises a nucleotide sequence which anneals to a region of the first single-stranded nucleic acid molecule, wherein said region is located 3′ to a region where the second oligonucleotide primer anneals and outside of a region defined by the outer nucleotides of the second oligonucleotide primer;

2) a DNA polymerase having strand displacement activity; and

3) one or more nucleotides which are used by the DNA polymerase to extend the primers; ~~and~~

B) incubating the mixture at such a temperature that the nucleotide sequence constituting the first and third oligonucleotide primers can form stable base pairing with the template; and

C) synthesizing a nucleic acid having complementary sequences linked alternately in a single-stranded chain.

55. (previously presented) The method of claim 54, wherein the mixture further comprises a regulator for melting temperature.

56. (previously presented) The method of claim 55, wherein the regulator for melting temperature is betaine.

57. (previously presented) The method of claim 56, wherein 0.2 to 3.0 M betaine is present.

58. (currently amended) The method of claim 54, wherein the mixture further comprises a detector for detection of a product formed by said ~~mixing of step A) and said incubating of step B)~~ steps A) to C).

59. (previously presented) The method of claim 54, wherein the sample nucleic acid is RNA, and the DNA polymerase has reverse transcriptase activity.

60. (new) The method of claim 54, wherein the first oligonucleotide primer and/or second oligonucleotide primer anneals to a loop capable of base pairing which is formed by hybridization of the complementary sequences.

61. (new) A method of synthesizing a nucleic acid molecule comprising:

A) mixing the following components 1) to 3) with sample nucleic acid as a template:

1) a primer set consisting of four distinct oligonucleotide primers, wherein:

the first oligonucleotide primer comprises (i) a 3′ terminal nucleotide sequence that anneals to a sample single-stranded nucleic acid molecule and serves as the origin of synthesis for synthesizing a first single-stranded nucleic acid molecule complementary at least in part to the sample single-stranded nucleic acid molecule and (ii) a 5′ terminal nucleotide sequence that is complementary to an arbitrary region of the first single-stranded nucleic acid molecule;

the second oligonucleotide primer comprises (i) a nucleotide sequence that anneals to a region of the first single-stranded nucleic acid molecule prepared using the first oligonucleotide primer and serves as the origin of synthesis for synthesizing a second single-stranded nucleic acid molecule complementary at least in part to the first single-stranded nucleic acid molecule;

the third oligonucleotide primer comprises a nucleotide sequence which anneals to a region of the sample single-stranded nucleic acid molecule, wherein said region is located 3′ to a region where the first oligonucleotide primer anneals and outside of a region defined by the outer nucleotides of the first oligonucleotide primer; and

the fourth oligonucleotide primer comprises a nucleotide sequence which anneals to a region of the first single-stranded nucleic acid molecule, wherein said region is located 3′ to a region where the second oligonucleotide primer anneals and outside of a region defined by the outer nucleotides of the second oligonucleotide primer;

2) a DNA polymerase having strand displacement activity; and

3) one or more nucleotides which are used by the DNA polymerase to extend the primers;

B) incubating the mixture at such a temperature that the nucleotide sequence constituting the first and third oligonucleotide primers can form stable base pairing with the template; and

C) synthesizing a nucleic acid having complementary sequences linked alternately in a single-stranded chain.

62. (new) The method of claim 61, wherein the mixture further comprises a regulator for melting temperature.

63. (new) The method of claim 62, wherein the regulator for melting temperature is betaine.

64. (new) The method of claim 63, wherein 0.2 to 3.0 M betaine is present.

65. (new) The method of claim 61, wherein the mixture further comprises a detector for detection of a product formed by said steps A) to C).

66. (new) The method of claim 61, wherein the sample nucleic acid is RNA, and the DNA polymerase has reverse transcriptase activity.

67. (new) The method of claim 61, wherein the first oligonucleotide primer and/or second oligonucleotide primer anneals to a loop capable of base pairing which is formed by hybridization of the complementary sequences.